

REMARKS

Reconsideration is respectfully solicited.

Claim 18 was previously amended to add the limitation recited in cancelled claim 40. Claim 18 is now amended to add the limitation recited in Example 20 of the specification. Therefore, no new matter has been added. Claims 42-44 are based on Figure 1.

Applicants respectfully traverse the rejection of claims of the instant patent application over WO97/00314 [Statements herein are based on the description of U.S. 6228480, the U.S. counterpart of WO97/00314, hereinafter "Kimura" ], under 35 U.S.C. 102(b). The Kimura U.S. counterpart of WO97/00314 does not provide written description of each and every element of the rejected application claims. Kimura does not describe a laminate formed by heat-pressing. Please see MPEP Section 2131. Therein the MPEP encapsulates the law with respect to 'anticipation' case precedent. The unitary reference applied as an anticipation must provide written description of each and every element of the claim under scrutiny.

The differences between the present invention and WO 97/00134 are discussed below. In applicants view, the Kimura reference does not describe any one of the three steps of Claim 18, which read,

- (a) coating a polymer resin film with a coating solution comprising an adhesive and then drying to form an adhesive layer;
- (b) subsequently coating the adhesive layer with a coating solution comprising a photocatalyst and then drying the coating solution to

prepare a photocatalyst-supporting film which carries the photocatalyst layer on the polymer resin film via the adhesive layer, and

(c) heat-pressing the photocatalyst-supporting film onto a surface of a metallic plate or a resin substrate at a temperature range from [[60]] 100 to 200°C to form an integral laminate.

In accordance with the method of the claims under examination, after the photo catalyst layer of the photocatalyst-supporting film is formed by drying(heating) the coating solution, the photocatalyst-supporting film (photo catalyst layer /adhesive layer/base film) is directly laminated, by heat-pressing at a temperature range from 100 to 200°C, onto a metal plate or a resin substrate to form an integral laminate. Therefore, the photocatalyst-supporting film is heated after forming the photo catalyst layer.

A photo catalyst layer/adhesive layer/base film is directly laminated, by heat-pressing, onto a metal plate or a resin substrate to form an integral laminate. Specifically, 1) it is the metallic plate or resin substrate on which the photocatalyst-supporting film is laminated, and 2) the supporting film is heat-pressed onto the plate or substrate to form an integral laminate. Neither 1) nor 2) above is disclosed or even suggested in Kimura.

Specifically, Kimura does not describe heat pressing the composite as in step (c), and Kimura does not describe the heat pressing pressure requirements of Claims 41—Claim 41 reciting that the pressure of the laminating step ranges from 3 to 160 kg/cm<sup>2</sup>.

The USPTO findings indicate that Kimura is not properly applied as an anticipatory reference. Vis-à-vis claim 18, the USPTO found in the

Office Action at page 3 that, Kimura fails to disclose the specific temperature of 60 to 200 °C. Accordingly, the rejection for anticipation does not appear to be in conformance with MPEP mandates. Now Claim 18 includes a limitation to the effect that the method comprises the step of “heat-pressing the photocatalyst-supporting film onto a surface of a metallic plate or a resin substrate at a temperature range from 100 to 200°C to form an integral laminate” Neither prior claim 18 nor the amended claim 18 is anticipated by Kimura and should not be rejected. MPEP Section 2131.

Regarding the limitation of the temperature range of 60 to 200 °C, the Examiner states that “it had been obvious ... because Kimura ‘480 discloses the laminating ‘at a process for drying and winding at the drying zone’ (see Example 73) and drying the coated substrate at 150 °C or less as a method to carry an adhesive layer on the substrate (see column 6, lines 19 – 27).”

However, the temperature of 100 to 200 °C in the amended Claim 18 is a temperature used when forming an integral laminate after drying the coated substrate, and not a temperature used when drying the coated substrate. Therefore, Kimura does not disclose heating of the photocatalyst-supporting film after forming the photo catalyst layer at the temperature of 100 to 200 °C to form an integral laminate.

The USPTO states that

“one skilled in the art would interpret the term ‘laminating’ to inherently involve both heating and pressing in such a way as

to not destroy the disclosed film or sticker, since that would destroy the disclosed invention of Kimura. And, in any case, at least some additional heat would be generated through at least friction by the winding and pressing as disclosed in Kimura".

Laminating does not necessarily involve heating under pressure. However, as described above, the photocatalyst-supporting film of Kimura is not heated after forming the photo catalyst layer. In addition, even if additional heat is generated through friction by the winding disclosed in Kimura, the USPTO has presented no art to show that "additional heat" would cause a temperature of 100°C which is the lowest temperature in the amended claim 18.

*In applicants' view, Kimura leads way from the claims of the instant case. After the photo catalyst layer of the photocatalyst-supporting film is formed, the photo catalyst layer of the photocatalyst-supporting film is formed by drying (heating) the coating solution, the photocatalyst-supporting film (i.e., photo catalyst layer /adhesive layer/support/adhesive (i.e., sticker)/detachable PP film) is obtained. When used, the PP films is peeled off and the rest is attached to a metal place. Therefore, the photocatalyst-supporting film is not heated at a temperature of 100 to 200 °C after forming the photocatalyst layer.*

The method of the present claims improves the function of the photocatalyst, according to the Declarant of the previously filed

DECLARATION. The following experiment is reported. Fulcon KN-C2000 which is a tent cloth canvas produced by KURARAY CO., LTD., including vinyl chloride and plasticizer was used as a polymer resin base.

First, the Fulcon KN-C2000 was cut into A4 size and applied with a coating solution for an adhesive layer and the coating solution was dried for 30 minutes at 60 °C to form an adhesive layer, wherein polysiloxane (Methylsilicate 51, Colcoat Co., Ltd.) in amount of 30% by weight relative to the weight of the acryl-silicon resin and a surface active agent were added to xylene-isopropanol solution (50/50 ratio by weight), which contains an acryl-silicon resin having silicon at a concentration of 3% by weight in an amount of 10 % by weight, to prepare a coating solution for an adhesive layer. The thickness of the adhesive layer was about 0.5  $\mu\text{m}$ .

Next, the Declarant reports, after cooling at room temperature, a coating solution for a photo catalyst layer was applied to the above adhesive layer and dried for 30 minutes at 60 °C, wherein acidic titanium nitrate sol which contains titanium oxide at a concentration of 5% by weight was dispersed in acidic silica nitrate sol which contained silicon oxide at a concentration of 5% by weight in the presence of a surface active agent to prepare a coating solution for a photocatalyst layer. The thickness of the photo catalyst layer was about 0.6  $\mu\text{m}$ .

Then, the dried photo catalyst layer was reheated by spraying high temperature air at 3.0 m/minute.

Based on the above method, samples were obtained. The samples included a photocatalyst-supporting film without reheating, and other samples in which a photocatalyst-supporting film was reheated at 100 °C, and a photocatalyst-supporting film was reheated at 200 °C.

For the test regarding the function of the photocatalyst, the color difference of each sample before and after being exposed in the open air was measured, wherein the exposure period was 6 weeks and the wavelength range of the color difference measurement was from 380 nm to 780 nm. The color difference of each sample was as follows:

Table 1

Sample	Color difference
Non-reheated	6.98
Reheated at 100 °C	4.61
Reheated at 200 °C	2.60

As shown in the above the table 1, the function of a photocatalyst is strengthened by reheating the photocatalyst layer after drying a photocatalyst coating liquid. The "color difference" is caused by the difference in the antifouling property. The applicants' Japanese representative reports that the antifouling property depends on the function of a photocatalyst, in which the photocatalyst activates decomposing chemical reactions with ultraviolet radiation, such as a chemical reaction resulting during a process of pasteurization and decomposition of an organic substance. Thus, because a high function of

the photocatalyst results in the activation of a chemical reaction to exert the antifouling property, a sample having a high function of photocatalyst does not cause a change of color. Therefore, when the sample has a low color difference, the function of the photocatalyst in the sample is high.

Further applicants' Japanese representative reports, the photocatalyst used in the Declaration was not the same as one used in the present specification. In the Declaration, an acidic titanium nitrate sol which contained titanium oxide at a concentration of 5% by weight and an acidic silica nitrate sol which contained silicon oxide at a concentration of 5% by weight were used as a coating solution for a photocatalyst layer in additional experimental data of the Declaration.

At page 12, lines 19 to 24 of the specification, use of a coating solution for a photocatalyst layer which is composed of a mixture of a silica sol and titanium dioxide sol is described. In addition, on page 12, lines 34 to 36 in the present description,  $TiO_2$  and  $SnO_2$  can be given for the photocatalyst in a photocatalyst layer.

Therefore, it is considered that the photocatalyst-carrying structure of Kimura, which is not reheated, does not have the excellent effect of that of Claim 18.

#### RESPONSE TO ARGUMENT ADVANCED BY THE USPTO

The Examiner states that "...Kimura '480 discloses the laminating 'at a process for drying and winding at the drying zone' (see Example 73) and

drying the coated substrate at 150°C or less as a method to carry an adhesive layer on the substrate (see column 6, lines 19-27)."

First of all, applicants respectfully direct the Examiner's attention to the fact that the temperature of 150°C or less is used for drying the adhesive layer which is located between the photocatalyst layer and the carrier in Kimura. The adhesive layer is not the same as the sticker used for laminating the detachable polypropylene film (Pyrene film P-2161).

As a matter of fact, Pyrene film P-2161 used in Example 73 of Kimura '480 shrinks under heating for 5 min at 120°C, as shown in the bottom of the Table "General quality of Pyrene film OT (P-2161) manufactured by Toyobo Co., Ltd" of the attached Exhibit. Therefore, a person skilled in the art would easily recognize that the temperature "at a process for drying and winding at the drying zone" in Example 73 of Kimura '480 is less than 100°C in order not to shrink the laminated Pyrene film P-2161.

Also, the Examiner states that "...And, in any case, at least some additional heat would be generated through at least friction by the winding and pressing disclosed in Kimura."

However, in the present invention, a pressing process is conducted while reheating at a temperature range from 100 to 200°C. It would be obvious to a person skilled in the art that the temperature generated through friction in Kimura does not reach 100°C of the present claims. The result of the present method claims, as shown in the declaration filed on August 19, 2005, is obtained by sufficiently pressing and reheating at the temperature range of 100-200°C, and not by mere friction.

Moreover, the Examiner states the "[t]he declaration under 37 CFR 1.132 filed 8/19/05 is insufficient to overcome the rejection based upon Kimura '480 as set forth in the last Office Action because; the evidence is not commensurate in scope with the claims... Further, no comparison is made against the prior art disclosure of 150°C or less."

However, the coating solution in all Examples of the declaration was

dried at a temperature of 60°C as shown on page 3 lines 3 to 4 in the declaration. Therefore, the non-reheated sample, in which the coating solution was dried at a temperature of 150° or less and was not reheated corresponds to Kimura's invention. The sample reheated at 100°C and the sample reheated at 200°C, in which the coating solutions were dried at a temperature of 150°C or less are examples corresponding to the present invention. Accordingly, the declaration filed on August 19, 2005 is sufficient to overcome the rejection based upon Kimura, because the reheated samples corresponding to the present invention provide the superior effect that the difference in color is small as compared to in the non-reheated sample corresponding to Kimura, which does not provide the effect as shown in the declaration.

Therefore, the amended Claim 18, as well as dependent Claims 24 to 39 and 41, should be allowed.

Reconsideration and an early allowance are respectfully solicited.

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Respectfully submitted,



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2006年 3月31日 10時58分  
ニホンツウダ シンカンExhibit  
(Original)

## 外観 括弧印 株式会社

松本高  
日本語バイレン®フィルム-OT (OPPフィルム)  
P2161(AS)

バイレン®フィルム OTは、ポリプロピレンを主原料とした二軸延伸フィルムです。その優れた透明性、防湿性、耐、耐寒性などの諸特性から、食品包装用をはじめ広い分野で、汎用プラスチックフィルムとして利用いただいております。

## &lt; 特長 &gt;

P2161は、帯電防止タイプで、巻内にコロナ処理を施しており、一般ラミネート用途に使用できます。

## &lt; 用途 &gt;

一般包装

## バイレン®フィルム OT P2161タイプの一般物性

項目	目	単位	P2161			測定法
厚さ	μm		20	25	30	
ヘイズ	%		1.2	1.2	1.2	JIS K7105
表面抵抗率	巻内	log Ω	11.5	11.5	11.5	JIS K6911
引張破壊強さ	タテ	MPa	150	150	140	JIS K7127
	ヨコ		350	350	350	
引張破壊伸び	タテ	%	190	200	220	JIS K7127
	ヨコ		45	45	45	
F-5値 (歪み5%の応力)	タテ	MPa	37	37	37	JIS K7127
	ヨコ		96	96	96	
引張弾性率	タテ	MPa	2200	2200	2100	JIS K7127
	ヨコ		4500	4500	4500	
動摩擦係数	巻内	—	0.25	0.25	0.25	JIS K7125
	巻外		0.4	0.4	0.4	
加熱収縮率 (120°C、5分)	タテ	%	3.5	3.3	3.2	JIS K6782
	ヨコ		1.2	1.2	1.0	

&lt;P2161&gt;

注) これらのデータは特定条件(23°C、50%RH)の下、  
東洋紡のフィルム特性評価機関で、測定した代表値です。  
巻内:コロナ処理面

## お問合せ先

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## General quality of Pyrene film-OT (P 2161) manufactured by Thyrobo Co., Ltd

Item	Unit	P2161			Measurement
		20	25	30	
Thickness	μm				
Haze	%	1.2	1.2	1.2	JIS K7105
Surface specific resistance	Inside of wind	logΩ	11.6	11.5	JIS K6911
Fracture strength due to tensile	Vertical	MPa	150	150	JIS K7127
	Horizontal	MPa	350	350	
Fracture elongation due to tensile	vertical	%	190	200	JIS K7127
	Horizontal	%	45	45	
Value of F·5 (Stress by distortion of 5 %)	Vertical	MPa	37	37	JIS K7127
Elastic coefficient due to tensile	Horizontal	MPa	96	96	96
	Vertical	MPa	2200	2200	JIS K7127
Dynamic coefficient of friction	Inside of wind	MPa	4500	4500	
	Outside of wind	-	0.25	0.25	JIS K7125
Degree of shrinkage by heat (at 120 °C, for 5 minutes)	Vertical	%	3.5	3.3	JIS K6782
	Horizontal	%	1.2	1.2	1.0